COOP'S TECHNOLOGY DIGEST

-A Timely Report on The World of Communications-

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COOP'S TECHNOLOGY DIGEST

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How the World is Responding to Digital

There are social implications to the advance of digital telecommunications which are worrying to many facets of government. Suppose, for example, there was a measurable slide of support for government programming services; such as, TVNZ in New Zealand and ABC in Australia?

The grand daddy of public broadcasting, the BBC, is faced with early indicators the public at large may be growing increasingly confused about their "obligation" to continue support for the BBC at a

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Pay TV and the Licence

Now that we have all these digital channels on subscription, the need for the TV licence fee has once again come into question. It does, on the surface, seem to be a bit of an anomaly. The licence dates back to the time when the frequencies available for broadcasting were far more limited than they are today. It was felt that this precious commodity should be used with discretion. In this situation it was natural for the idea of public-service broadcasting to arise.

The BBC became a public corporation in 1927, when there was very little broadcasting and, in the UK, little money with which to provide it. But almost everyone, in particular the nascent radio manufacturing industry, wanted it. So there was little opposition to the idea of establishing a licence "to install equipment for radio reception", the fee to be used to fund a broadcasting service. This is hardly the situation today, but a strong case can nevertheless be made in favour of maintaining a vigorous, independent public-service broadcaster. It has to be paid for, and to maintain its independence – a particularly important factor – a source of finance separate from government funds (taxes) and commercial funds (advertising, sponsorship etc.) is required. Hence the licence fee.

With each major step in the evolution of broadcasting, for example the introduction of extra channels as TV technology started to use higher frequencies, and then the introduction of cable networks and satellite transmission, it has been customary to look afresh at the licence and what it stands for, and question its need. The case for its continuation has, in the past, always been generally accepted. The case is no less strong today.

It would be decidedly less strong in the absence of a broadcaster able to provide high-quality public-service broadcasting. In this respect the responsibility that lies with the BBC and its governors is immense. Literally, public-service broadcasting and the BBC stand or fall together. It would be almost impossible today to build from scratch an independent broadcasting organisation with the standing and authority the BBC has achieved.

The question nevertheless persists: do we need it – especially with all those digital channels that seem to be capable of offering so much? Well actually they are a bit of a charade. All sorts of bits and pieces thrown together, the same films starting at half a dozen different times, and sports strewn across a number of channels. There's a hard centre of good broadcasting – there has to be otherwise people would simply switch off – accompanied by a load of dross. The BBC, with its public-service commitment, forms part of the hard centre. For cost reasons the dross now being added is unlikely to improve – the vast majority of viewing will remain with a handful of channels.

The case for maintaining the BBC's independence via the licence fee rests, above all else, on the need to preserve a source of information free from taint, corruption, spin doctoring, commercial distortion and other such factors. But an independent, unbiased source of information is not of itself sufficient for a complex medium such as television. Fortunately the BBC has had time to develop a cultural and technical depth that places it in the top rank in the broadcasting world. This is an important resource, worth every penny that's required to maintain it.

The problem that the BBC has today is how to continue to fulfil so many roles when its means are restricted. Should it lower its technical profile, pull back from general entertainment, concentrate on being an information centre? Some curtailment of its activities is probably inevitable, and has been a major concern of BBC management. There have been suggestions that the BBC should provide a sort of supplement to commercial TV, adding education, in-depth news and so on. But a scaled-down service of this nature would have little general impact. It is essential that the Corporation remains a full-blown broadcaster. In fact in this respect the BBC has been making life difficult for itself by establishing a number of new public-service and commercial channels despite its severe financial constraints. It's a difficult act that will present many problems for the present and future management.

You may not spend much time watching the BBC's output. But without it the general quality of broadcasting is likely to decline. We continue to need it, and the price is a small one to pay.

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time when the BBC is yearly less a part of their viewing or listening habits. This editorial appears in (British) TELEVISION Magazine for January (1999).

Although the "hype" urging consumers to trade up to "digital television" has been over whelming, not all of the television trade (in the UK) is "sold" on the shift from analogue to digital. Further confusing the issue of becoming a subscriber to BSkyB digital satellite services is the almost simultaneous introduction of terrestrial digital television (TDT or DTT as it is sometimes abbreviated). Digital television delivered by terrestrial broadcasters in Australia and New Zealand is many years away and the exact format it will take has not yet been determined.

The following letter appearing in UK trade publication TELEVISION for January recites some of these concerns.

The Cost of Digital TV

Much has been said about the advantages of digital television. Little has been said against it. This letter may redress the balance a bit.

For many years now I have encouraged my customers to use their lounge or living room as the base for their TV entertainment. I have recommended the use of a good aerial of the correct group, pointing in the right direction, and the use of best-quality coaxial cable with no joints, feeding straight into a satellite receiver which in turn feeds a VCR and from there to a distribution amplifier. Thus all five terrestrial TV channels, the satellite channel selected in the lounge, and the video inserted in the player reach as many rooms as required in the house, giving everyone the choice of seven channels at a time. This makes it almost worth paying nearly £100 a year for the TV licence.

With the new ONdigital system you have to buy a set-top box, at £200, which allows you to choose any *one* of fifteen channels. In addition you have to pay about £160 a year for the card to activate the channels. You can then point a remote-control unit at the box to select the channel you want to watch. If your wife or one of your children wants to watch a different channel elsewhere another £200 box will be required plus another £160 per year for a card. So for a three-child, two parent family to get what they already have will cost £1,000 for set-top boxes, £800 per year for cards and £100 for the licence.

I checked with the ONdigital helpline to confirm these figures, and can't really see many people paying that much money for so little. I give ONdigital full marks for cheek, but in the real world with Sky and cable both offering better value I don't rate ONdigital's chances too highly.

If ONdigital doesn't survive, will the existing system be retained? What will happen to all the digital decoders? Will it be another BSB debacle? Will early digital sets be dual-standard, and thus not complete right-offs?

Digital satellite systems have started to appear in the shops for £199, on condition that you pay a £30 charge to BT for connection to an existing line you already pay for. This seems daft to me, as Sky is offering the same product for £159. Why pay £40 extra for something that's useless without the Sky channels?

How long will it be before Sky starts to give receivers to subscribers in order to compete with cable? Sky appears to be offering unwatchable rubbish simply to increase its number of channels. The general consensus seems to be in favour of a system in which you pick the channels you want and pay for these only. The channels that no one chooses are not worth transmitting and could be dropped. This would reduce costs. Apart from the £30 BT charge, SkyDigital doesn't seem to cost more than the analogue Sky package.

It is difficult to guess what the cost of digital cable TV will be. My feeling is that it will cost about the same as satellite TV, but with a much lower installation charge. Should ONdigital go, it will be the only alternative to satellite.

I'm wondering: could we all end up going out to the cinema or renting videos again to save money?

John Hopkins,
Felixstowe, Suffolk.

Carrying this investigation to the next plateau, What Satellite TV in their January issue compared Murdoch's BSkyB with the terrestrial ONdigital service. BSkyB has the early advantage of reaching virtually all of the UK from satellite while ONdigital has service coverage restricted by the number of ground based transmitter sites initially available. This will equalise during 1999 as the balance of the terrestrial distribution system is completed.

There are other differences. ONdigital offers free to air services in digital format - no need for subscriptions, in addition to optional subscription services. BSkyB has a similar offer but there is a need for a (no charge) subscription "card" to activate the service. Of interest - BSkyB entertainment channels appear in both the satellite and digital package, but because of copyright restrictions some satellite available programming is not available (simultaneously) to terrestrial viewers.

Initial cost for equipment and the monthly fees are comparable for comparable services - BSkyB being slightly less expensive on both counts. BSkyB has one significant advantage - it can offer more than 150 separate "services" although many of these are radio - approximately 44 - (audio) only and a significant percentage of the TV channels - 50 typically - are pay per view (only available when a viewing fee is paid to watch a particular programme).

The battle fo living room

You've looked over the information packs, seen the adverts and heard the hype. Now it's decision time. Will it be your existing TV aerial or a new mini satellite dish which delivers the digital TV era into your living room?

Does it matter which you choose? And is there really any difference between digital terrestrial TV (DTT) and digital satellite TV anyway? These are the questions that millions of Britons are considering as the big digital revolution gets into full swing.

At first glance, you might think there's little to separate the two. After all, Sky Digital and ONdigital both claim to offer an improved channel choice, better pictures and sound, plus soon-to-be-launched interactive features such as e-mail and home banking.

But there's much more to consider than those basic benefits. You'll need to mull over which channels you want to watch, how much you want to pay, what type of equipment you want, and also whether the services are available in your area. Only then can you properly weigh up the pros and cons of each service.

The most important issue to consider is coverage – the area of the UK where each digital service can be received. This varies because Sky Digital is receivable with a 45cm dish pointed at Astra 2A at 28.2°E while ONdigital's signals come to your TV aerial via transmitter masts across the country.

Sky Digital claims to cover 95 per cent of the British Isles (including Wales, Scotland and all of Ireland). Viewers in the extreme north of Scotland and far west of the Irish Republic require a slightly larger 60cm dish (at no extra expense) than the 45cm antenna. Line of sight restrictions (ie trees, walls, mountains, etc) mean that the estimated 5 per cent of the country cannot receive Sky Digital signals.

ONdigital, by comparison, claims to be available in only 70 per cent of the country because its service is dependent on 22 transmitters. However, an Independent Television Commission study says that the figure is closer to 45 per cent, with only 10 per cent of homes in the postcode areas AL, CB, CF, CH, CM, CT, CV, DN, DT, GL, HU, L, NP and TF getting some reception.

As our coverage map over the page shows, viewers in many outlying areas of Wales, Scotland and Ireland can either receive no channels at all or just a few from the three multiplexes.

By the end of 1999 an extra 59 transmitters should have come into service, and the ITC predicts that 70 per cent of the UK will be able to watch Multiplex D (Carlton Kids/World, Carlton Select/Food Network, Shop!, UK Play and UK Style/Horizons), 80 per cent will see Multiplex C (Granada Plus, Granada Breeze/Men & Motors, UK Gold, Sky Sports 3 and Sky Moviemax), and 90 per cent shall receive Multiplex B (Sky One, Cartoon Network, Carlton Cinema, Eurosport, Sky Sports 1 and Sky Premier). Those who cannot receive channels from all three multiplexes will be given reduced rate subscriptions to account for this.

Once you've determined whether you can receive one of the services, you'll need to decide which equipment to go for. ONdigital's system retails for £199 (after subsidy and including VAT) providing that you buy one of the pay-TV packages, or £399 if you don't.

Similarly, Sky's receiver costs £199 (or £160 for existing analogue subscribers) for those who take out a subscription to one of the pay-TV packages and also sign a contract with BIB. Those who do neither pay £370 while those who sign the BIB contract but don't subscribe to Sky pay £100 for installation. To avoid getting saddled with these extra charges, you should buy one of the pay-TV packages.

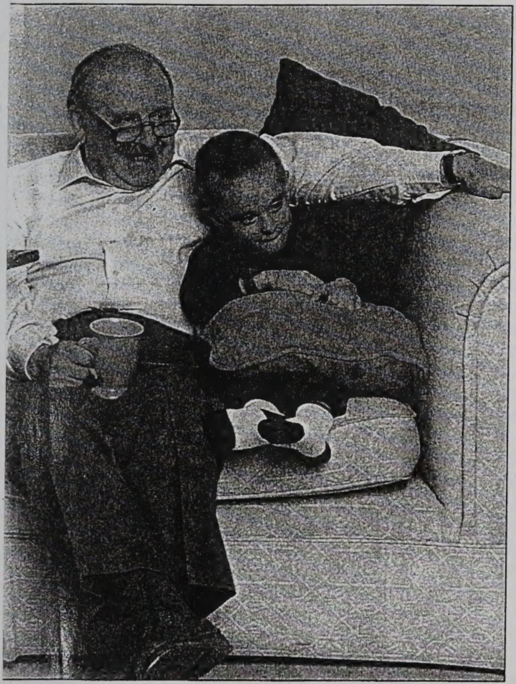
● *The BBC's six digital channels are available without charge on both satellite and digital terrestrial TV, but you do need a viewing card to see them*

ONdigital's cheapest option, consisting of any six primary channels, costs £7.99/month while all 12 costs £9.99/month. You can also buy one of the Sky premium channels for £11/month, two for £15/month or three for £18/month. Film Four is £5.99/month.

Sky, by contrast, offers the cheapest digital subscription of all. Spend £6.99/month to get five channels plus ten Music Choice stations. Alternatively, you can spend £8.99/month to get one of four genre-linked packages of 13 or 14 channels. Those who want more can buy a dozen Sky film channels, plus 40 basic channels, for £24.99/month while sports fans can

r your

Which digital service is right for you? Mark Newman cuts through the hype to examine the hard facts that separate Sky Digital and ONdigital



buy a trio of Sky's channels, plus the 40 basic channels, for £24.99/month.

It's worth remembering that ONdigital is currently only offering watered-down versions of Sky One, Sky Premier and Sky Moviemax due to rights problems (see *What's New*), but does hope to offer the full satellite versions in the next few months. Both terrestrial and satellite also provide free-to-air channels that cost nothing – with nine and 14 respectively.

HARD-TO-GET HARDWARE

Both services have suffered from minimal supplies of digital hardware in their first months on air. ONdigital could only

SKYDIGITAL	ONDIGITAL
Sport	
Sky Sports 1	Sky Sports 1
Sky Sports 2	Sky Sports 3
Sky Sports 3	Eurosport
MUTV	
Sky Sports News	
The Racing Channel	
Films	
Sky Premier 1, 2, 3 & 4	Carlton Cinema
Sky Premier Widescreen	Sky Premier
Sky Moviemax 1, 2, 3 & 4	Sky Moviemax
Sky Cinema 1 & 2	Film Four
Film Four	
48 Sky Box Office film channels	
Documentary	
Discovery Channel + Timeshift version [.tv]	UK Horizons Carlton World
Discovery Travel & Adventure	
Discovery Civilizations	
Discovery Sci-Trek	
Animal Planet	
The History Channel	
National Geographic	
UK Horizons	
Non-subscription channels	
BBC1	BBC1
BBC2	BBC2
BBC Choice	BBC Choice
BBC News 24	BBC News 24
QVC	Channel 4
CNN	ITV
TV Travel Shop	ITV2
S4C (starts January)	Channel 5
TNT	
Cartoon Network	
BBC Parliament	BBC Parliament (audio only)
Travel	
Channel 4	
Channel 5	
Entertainment	
Sky One	Sky One
Bravo	Carlton Select
Challenge TV	Granada Plus
Discovery Home & Leisure	UK Gold
Granada Plus	FIRST ONdigital
Tara	Shop!
Paramount Comedy Channel	
UK Gold	
UK Gold Classics	
Sci-fi	
UK Arena	
News	
Sky News	BBC News 24
Bloomberg	
CNBC	
BBC News 24	
CNN International	
Lifestyle	
Living	Carlton Food Network
UK Style	UK Style
Granada Men & Motors	Granada Men & Motors
Granada Breeze	Granada Breeze
Sky Travel	
Sky Soap	
Television X, After Midnight	
Kids	
Fox Kids	Cartoon Network
Nickelodeon	Carlton Kids
Trouble	
Disney Channel	
Music	
MTV	UK Play
M2	
VH-1	
The Box	
UK Play	
44 Music Choice channels	

FIVE GREAT THINGS ABOUT SKY DIGITAL

- **Over 160 channels now, with capacity for 500**
- **Unobtrusive mini dish**
- **Coverage of whole UK**
- **Digibox can receive foreign channels too**
- **Interactive services (home shopping and e-mail) coming from Spring**

FIVE GREAT THINGS ABOUT ONDIGITAL

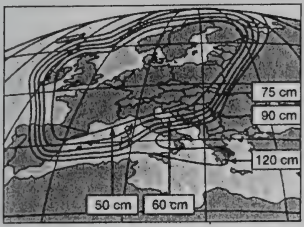
- **Hassle-free installation**
- **You can choose the individual channels you want**
- **Receiver & card can be used in second location (if coverage allows)**
- **No dish required**
- **EPG overlay allows viewing of channel and listings**

FIVE BAD THINGS ABOUT SKY DIGITAL

- **Phone connection needed for interactive facilities**
- **Some blocks of flats and conservation areas can't have dishes**
- **Sky contract forbids you to use viewing card in second location**
- **You have to subscribe to groups of channels rather than pick ones you want**
- **Slow-to-operate EPG**

FIVE BAD THINGS ABOUT ONDIGITAL

- **Only 30 channels now with capacity for just 60**
- **Limited coverage means few can watch it**
- **Some Sky channels don't show all their TV shows**
- **No firm launch date yet announced for interactive services**
- **Receiver has no use beyond UK digital TV**



offer equipment from Philips at launch, while Sky Digital was only available through Pace boxes. Both aim to have receivers from other manufacturers on sale in the New Year, along with integrated digital widescreen TV sets with built-in receivers (costing £1,000).

Both systems have their flaws. The Sky Digibox suffers from a slow Electronic Programme Guide and several as yet inoperable features such as teletext, DiSEqC switching, a personal TV planner and enhanced text (see last month's issue).

One of the main attractions with Sky's system is its well-designed remote control, which is both easy to understand and use. By comparison, the ONdigital remote is a rather drab unit that's not so easy to handle or operate.

The first ONdigital receivers on the market also had several technical problems too. The Viewing Preferences menu appears to include a mono video sound option but, when selected, it does not store the facility for future use. Similarly, the video standard settings appear to offer PAL-I, B and G plus S-video but you cannot change the setting to S-Video and store it.

Furthermore, while the TV Scart output can be switched between mono and stereo, the recording output cannot. There is also no contrast setting in the menu – an important facility that lets the user match the picture setting of the receiver's output with that of analogue channels. Note too that the Sky Digibox has a fast 28.8Kbs modem while the ONdigital box has a slower 2.4Kbs unit.

PERFORMANCE COMPARISON

When a strong DTT signal is received, the ONdigital receiver turns in decent AV output. The nature of DTT CODFM signals means that previous analogue reception problems (such as ghosting) are eliminated altogether, but other reception discrepancies can still cause isolated problems. Indeed, we've heard of some viewers getting perfect reception while others in the same street are suffering signal drop-outs.

Performance from the Sky Digibox is generally excellent, with superbly crisp audio and fairly sharp pictures, though this does vary from channel to channel according to the quality of the original output. There are no geographical differences, providing that you have a suitably sized dish for your area.

Since the DTT receiver is set up to receive only CODFM signals, it cannot be put to any satellite use. Similarly, the Sky Digibox is not able to receive terrestrial transmissions in its current form. However, it has a slot on its rear panel for a Common Interface module which could facilitate terrestrial reception in the future. The Sky Digibox can, though, be used for receiving digital channels from other satellite positions besides 28.2°E, provided that you have a movable dish or dual-LNB setup.

One advantage that the ONdigital system has over the Digibox is its portability. As the system is not tied to a satellite dish or certain phone connection, it can be taken to a second place, say when you visit a relative, then plugged into their TV aerial and used in the normal way. If there is DTT coverage in the second area, you'll be able to watch the same channels.

Those who go down the digital terrestrial route should find that installation is hassle-free. That's the theory. Although many buyers are indeed finding they only need to plug their aerial input into the receiver, others are finding their existing aerials are not suitable. Some require a pre-amplifier unit to be fitted and others need to be replaced with high gain antennas. ONdigital says it will replace unsuitable aerials free of charge, but will not make expensive technical adjustments.

Installation of the Sky Digibox, by contrast, is handled entirely by trained installers. While this means the system will be properly set up, it can also lead to a wait of up to a week between buying the Sky system and having it operational.

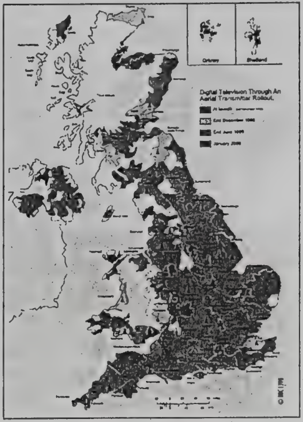
The ease of operating the two receivers varies considerably. Both have onscreen Electronic Programme Guides (EPG), with which TV listings and technical settings can be viewed and accessed. Whereas the ONdigital system provides two semi-transparent coloured boxes that overlay the video image itself, usefully enabling the user to continue watching and listening to a channel while reading detailed TV listings, the Sky EPG has solid blue pages with no transparency. Pressing the Sky handset's Select key brings a Scan and Display Banner onscreen – with programme titles for the next few hours – but full listings with episode synopses are not available using this method.

Both receivers have the ability to provide future interactive services. While Sky has already introduced pay-per-view buying through its TV remote, the proper interactive services from Open, such as home banking, e-mail and home shopping, won't be offered until the spring and autumn. ONdigital, for its part, does not have a deal for interactive services in place just yet, but says it hopes to offer e-mail by mid-1999. The new facilities for both will be automatically added to the receivers using over-the-air upgrades.

Both Sky and ONdigital can also upgrade the number of channels available to their users. ONdigital can increase the number of channels available because its COFDM multiplexes can probably be upgraded (in the future) each carry eight to 10 TV channels in place of the existing six. This will eventually mean that consumers in the best coverage areas will have a choice of between 48 and 60.

Sky Digital can increase to around 350-400 channels by using more transponders in the 28.2°E orbital slot. Increasing the compression means the service is only really restricted by the amount of memory in the Digibox – a maximum of 500 channels can be stored.

To sum up, Sky Digital offers a considerably larger line-up of channels and a far wider coverage throughout the UK than ONdigital, but DTT can lay claim to a faster installation process and a more portable system. So which will you go for? The decision is yours! ●



● *Sky Digital (far left) is available throughout the UK, while DTT coverage (left) is patchy*

on digital

skydigital

● *The DTT receiver costs the same as Sky Digital's*

A View from Thailand

"*I have recently subscribed* to the local DBS direct to home satellite digital service. This is a merger of the two original providers IBC and UTV. Their catchy logo says, rather ironically, '*You've got to watch it!*'. Currently there are 28 channels including 5 film channels at a cost near US$25 per month. I have the complete package, but there are some less expensive subsets. The initial set up charge was US$225 including the receiver; a Sun Moon Star ABS 9877, made in Taiwan. The dish is a 60cm offset. They also use the Pace (DVR) 500 but having seen both, I prefer the SMS which has superior on-screen displays and 2 sets of audio/video outputs including S-Video.

"*Initially the service from IBC* was somewhat flaky. On one occasion, the receiver locked up altogether and the best advice the customer desk could give me was 'Power off and power on again'; shades of the problems reported in SatFACTS Monthly! Heavy rain will block out the signal, as it did one Sunday during an (all important to me!) F1 Grand Prix.

"*With the merger* of the (then two failing services - editor), there was a complete reorganisation of the channels. They are grouped according to type or programme category, with spare (unused) channels between groups for growth in specific categories in the future. The new channel information was initially downloaded over the air, but it had the effect of adding to the already existing channels in memory. This resulted in more than 100 in storage but the service then ran a short tape on their preview channel telling us how to 'edit' and 'drop' the duplicated channels. The merger also involved a change in frequency and satellite. The signals now come from Thaicom 3 and UBC claims the power is 'double' what it was previously. They hope that rain drop outs will now be a thing of the past - time will tell.

"*Some channels are far from perfect.* BBC World, for example, has a nasty habit of freezing the video with a short break before it continues. This is irritating although it is difficult to ascertain where the 'marginal' link is located. The service goes through several satellite hops before we see it on the UBC package and anyone of those could be close to threshold resulting in the frames freezing. Mind you - I dare not complain too loudly as we have gone two years without BBC World here after Rupert Murdoch dropped the service on his STAR Asia analogue service to appease China.

"*Previously*, I have been a regular viewer of FTA Star TV services from AsiaSat 1. With the failure to launch properly of AsiaSat 3, Star TV had to scramble to maintain their business plans during 1998. They did the common-sense thing - took the existing FTA analogue channels servicing cable in India and elsewhere off the air and replaced these with bouquets of digital utilising the same (already available) As1 transponders. We had almost no advance notice this was happening; in mid-June, on-the-air announcements saying they would convert to digital July 1st. Star invited viewers to contact their nearest Star office to find out about obtaining Star digital boxes.

"*Requests to their offices* have been non-productive. Star's regional director, Charles Pollard, told me that decoders are in short supply, the majority (read all of them) will go into India for now and the balance of SE Asia would '*simply have to wait*'. As we have paid no subscription for these free to air services, we were not customers - merely viewers. Can you believe this - 3 weeks warning!

"*I suggest all people* in the UK, the balance of Europe and elsewhere served by News Corp packages be warned; the attitude of service providers when switching into a new mode of delivery leaves a great deal to be desired!"

(Alan E. Smith, Si Racha, Chonburi, Thailand)

The Papua New Guinea "Copyright" Case

On September 2 (1998), lawyers for HITRON PTY LIMITED filed a "Notice of Motion" with the National Court of Justice at Waigani (PNG) seeking a court ruling -

> "That until further notice, the Defendant be enjoined from distributing the television programmes of CNNI, NBC, CNBC and BBC World Service through its cable television service within Papua New Guinea."

Hitron is licensed by the PNG government to operate cable television and M(M)DS services throughout the Capital District. The firm began in business more than twenty years ago as a supplier of home satellite dish systems for residents of PNG. For many years, while PNG was within the coverage reach of Aussat (pre-Optus) satellites, Hitron sold B-MAC and other equipment that

allowed reception of direct Australian TV. However, it is not the only firm licensed by the PNG government to supply cable and/or M(M)DS services. Early in the 1990s, Hitron began to develop an alternate business plan. In addition to being a distributor of programming, they would also attempt to "control" programming from major sources (such as CNNI) by becoming the "exclusive distributor" for such programming in Papua New Guinea. As other cable and M(M)DS operators began to grow, Hitron apparently saw the control of programming availability as crucial to its own business plan. If they could force competitors into a position where the competitors were unable to utilise programming from services such as CNNI, Hitron could then eventually "rationalise" the pay TV world in PNG by either buying out the competition or forcing them out of business. At least that is how their actions appear to observers.

One of the competitors to Hitron is Channel 8 Pty limited. And it was against "8" that Hitron went to court in September. In their Statement of Claim, Hitron lawyers told the court:

"2. The Plaintiff is licensed under the Telecommunications Act of 1996 to broadcast television within certain areas of Papua New Guinea and in accordance with such licenses broadcasts television by means of cable and MMDS in the National Capital District.

"3. By separate agreements and in consideration of the payments of moneys between the Plaintiff and each NBC Asia C.V., BBC Worldwide Limited and Turner International, Inc. (the [Programme Owners] the Plaintiff has the exclusive right and license to distribute NBC, CNBC, BBC World Service and CNNI (the programmes) within Papua New Guinea.

"4. The Plaintiff is the legal owner within Papua New Guinea of the Programmes and has the exclusive right to distribute the Programmes by cable and MMDS transmission within Papua New Guinea. The Plaintiff sells the rights to view the Programmes to subscribers to its cable and MMDS microwave service and other cable operators.

"5. The Defendant, in breach of the Plaintiff's exclusive rights, is distributing, by cable, the Programmes within Papua New Guinea.

"6. The Defendant has caused the Plaintiff to suffer loss and damage and to lose income through the Defendant's continued unauthorised and illegal use of and distribution of the Programmes and in breach of the Plaintiff's copyright of the Programmes.

"7. Unless restrained by the Honourable Court the defendant threatens and intends to continue the acts complained of whereby the Plaintiff will suffer further loss and damage.

"8. The Defendant has infringed the copyright of the Plaintiff and has unlawfully interfered with the contractual rights of the Plaintiff by broadcasting the Programmes through the Defendant's cable television service."

The Plaintiff sought:

" (1) An injunction to restrain the Defendant (whether acting by their respective directors, officer, servants or agents or any of them or otherwise howsoever) from its unauthorised use of a breach of the Plaintiff's rights in the Programmes;

" (2) An inquiry as to damages for infringement of copyright or, at the option of the Plaintiff, an account of profits;

" (3) Damages for unlawful interference with the Plaintiff's contractual rights;

" (4) Further of other relief, and

" (5) Costs."

Court dates late in September, then early in October were set and reset. On October 21, the attorney for Channel 8 advised the defendant:

"We have today received an amended pleading from the Plaintiff. The amendments do clarify some of the claims against Channel 8 - notably the Plaintiff appears to have abandoned arguments of ownership and pure copyright. However, these concepts have been replaced by an allegation that the

Plaintiff enjoys rights as a licensee 'in the nature of copyright'. We do not understand what this means. The Plaintiff either has copyright or it does not and there is no 'right' arising from a licence agreement which is enforceable as a form of quasi-copyright. Presumably the Plaintiff means to plead some proprietary as oppose to contractual right sufficient to be enforced by a Court against any cable operator in Papua New Guinea - but has not specifically pleaded this."

It is important to note here that each of the services specifically cited by Hitron (CNNI, CNBC, NBC Asia - when it was operational - and BBC World) are transmitted FTA (free to air). The programme creators and therefore copyright owners (Turner/Time Warner, NBC Asia C.V. and BBC World Limited) do routinely licence cable operators, hotels and others to receive their services to redistribute for a fee. However, because none of the trio presently encrypts their broadcasts, there is significant question whether a contract between Hitron and any or all of the three would be valid on close inspection. Hitron has no direct way to monitor third parties receiving and utilising the signal, except through reports it receives from users and others. At one point in the preliminary attempts by Hitron to extract fees from Channel 8, the list of services Hitron claimed "*exclusive rights to*" was much larger and included other FTA service providers such as CCTV (China's international service), NHK (Japan's international service) and others. Why Hitron dropped these additional programme providers from its pleadings is unknown but in each case it claimed by right of contract with the programmer an "*exclusive right*" to control or approve use of the respective services anyplace within PNG.

It is also important to note that if a cable operator installed his own reception equipment for any or all three of the services claimed in the suit, the "contribution" from Hitron to the reception and distribution of the service is non-existent. Hitron at one point was attempting to convince the court that the "exclusive right of distribution to television programming" was no different than having an exclusive right to distribute a tangible item, such as a Toyota vehicle. Attorneys for Channel 8 saw this claim differently and quickly noted that in the case of CNNI, BBC World and NBC, Hitron never "touched" nor in any way "assisted in the delivery of the (programming) to the Channel 8 facility." In effect, how could Hitron claim "exclusive distribution" for a "product" which never passed through its hands, and was "available free of charge to anyone who installed the appropriate equipment to access the service?"

On December 18, Judge Sevua issued his decision.

"*By way of notice* of motion, the plaintiff seeks an injunction to restrain the defendant from distributing the television programmes of CNNI, NBC, CNBC and BBC World Service (the programmes) through its cable television service in Papua New Guinea.

"*The plaintiff is the holder* of a Microwave Multi Channel Distribution Service or MMDS licence in the National Capital District, issued on 21st October, 1994. The licence relates to satellite television programmes transmitted by means of an encrypted microwave signal for reception on a television receiver by means of a decoder. This service is restricted to NCD only and members of the public who consume the programmes by this medium are subscribers to the plaintiff.

"*The defendant holds* or is entitled too hold a Cable Television Service licence. It is noted from the defendant's evidence that the State's licensing authority, PANGTEL, has approved this licence, which is effective as of the 1st of January 1997 for ten years, however it is yet to be physically issued.

"*The plaintiff's substantive* claim is based on allegations of breach of its claim to a right analogous to common law copyright in programmes. Alternatively, the plaintiff claims unlawful interference by the defendant with the plaintiff's business rights. The plaintiff's application is therefore brought on the basis of its assertion of this common law copyright, as it claims, it has exclusive or sole right to distribute these programmes.

"*Having read the affidavit* filed herein and heard the oral testimony in the application, it appears quite obvious to the Court that there is a bitter controversy between the plaintiff and the defendant. I say bitter controversy because of the manner in which the two principal executives of both parties to this action had been quite forceful in their cross examination, without each giving any concession to the other. Having heard and read these evidence, I am satisfied that the controversy between the parties is more economical or commercial than anything else. Damages is therefore an important consideration in this matter, in my view.

"*Both counsel* have made extensive submissions and referred to numerous cases on the law. However, it is my view that some of the submissions relate to the substantive issues which are irrelevant to the present application, and these should rightly be reserved to the trial.

"*Questions relating* to the issue of copyright law and intellectual property rights are also matters that will be determined after the trial. However, I believe it becomes necessary to refer to them at this stage too, because, they directly have a bearing on whether or not an injunctive relief sought ought to be granted at this stage of the proceedings.

"*It is a fact* that Papua New Guinea has no copyright law. Mr. Lowing, counsel for the plaintiff application said in his submissions that a Copyright Bill was passed by the Parliament, but it has not been brought into force. The court is not aware of the passage of such (a) bill, but in any case, that is as far as one can take it really. There is no copyright law in this country, neither is there any law on intellectual property rights.

"*I consider* that there are two principal issues that are relevant here. Firstly, whether the plaintiff has a legal right or interest in, or owns, the satellite programmes, the subject of this suit. This is an issue which will have to be fully determined in the trial proper, however, in my view, it is relevant at this stage, because it can determine whether the Court should or should not grant the injunction sought by the plaintiff. Secondly, whether or not an injunction should be granted in favour of the plaintiff.

"*The law on interlocutory injunction* is well settled in this jurisdiction. There is a line of cases in this jurisdiction from 1976 to date which adopted the famous American Cyanamid case (**American Cyanamid -v- Ethicon Limited** [1975] **1 all ER 504)**. A number of English common law cases are also cited in those decisions which I do not intend to cite. So in relation to the grant and refusal of an injunction, there are many decisions both in this and other jurisdictions. The relevant principles in respect of issuing an injunction have been established by the American Cyanamid case.

"*I think the general rule* can be briefly stated in this way; a plaintiff must show that he has some legal rights or interest in a dispute that he seeks to protect by injunction. Of course there are other principles applicable in granting an injunction which counsel have referred to, but I consider this the major one.

"*The plaintiff has referred to agreements* between it and the owners of the programmes; the subject of this suit. I think it is correct to say that the plaintiff's claim of right to these programmes is based on these agreements. However, in my view, these agreements do not confer any legal rights or ownership to the plaintiff. I prefer the defendant's submission that in the agreement between the plaintiff and Turner International, Inc. the later ... "*retains all property, rights and title in these programmes*." Nothing is transferred to the plaintiff.

"*In my view*, the fact that these programmes have copyright in another country or jurisdiction does not mean that such copyright apply in Papua New Guinea. I consider that any copyright or intellectual property rights that may apply in a foreign country over these programmes do not apply in Papua New Guinea. These programmes can be protected by copyright or intellectual property laws if we have the relevant legislation in existence. At present, we do not, therefore the protection accorded these programmes by way of copyright or intellectual property rights in a foreign land do no apply here.

"*The plaintiff has submitted* that the common law principles should be adopted and applied in this case by virtue of schedules 2.2 and 2.3 of the Constitution. I am of the view that the common law principals which the plaintiff seeks to rely upon ought not to be adopted in this case. I say it is inappropriate to Papua New Guinea. We need to legislate our own copyright law to protect our own musicians artists, writers, programmes and many other activities that require protection by copyright law. I do not say that common law principles should not apply, but I think it is appropriate Papua New Guinea should have its own copyright law passed by its own Parliament.

"*Even if I am considered wrong* for that reason, it is my view that an injunction should not be granted because in my view damages would be adequate. The defendant, like the plaintiff, is a business commercial, it is a corporation, therefore, in my view, any loss suffered by the plaintiff would be adequately compensated by the defendant, if such loss is proven. There is evidence to suggest that damages or loss can be calculated mathematically, therefore I consider that, if the

plaintiff succeeds at the trial, it would be adequately compensated for the loss suffered.

PAPUA NEW GUINEA
[National Court of Justice]

WS 829 of 1998

BETWEEN : HITRON PTY LIMITED
Plaintiff

AND : CHANNEL 8 PTY LIMITED
Defendant

"*There are two other reasons* I would refuse to grant an injunction. Firstly, the Court is concerned with the Constitutional impact if the plaintiff is granted an injunction. It will mean that the rights of the citizens under s.46 Constitution will be violated. Freedom to receive ideas, information, and freedom of mass communication will be restricted. This right or freedom can only be regulated or restricted by law. There is evidence that the defendant provides these programmes to many people, and in my view, these people would be denied their Constitutional right if I were to grant an injunction.

"*Secondly*, the Court must consider whether the imposition of a restraint on the defendant is reasonable and necessary to protect the plaintiff from some irreparable damage or whether damages would be adequate compensation. I have already adverted to the adequacy of damages. As to the reasonableness, I consider that not only will the defendant be affected, but the defendant's clients, the members of the public, would too. A restraint on the defendant would mean that the interest of the defendant's clients, i.e. members of the public, would be prejudiced and they would be denied the right to have access to these programmes.

"*Of course the issue* of whether these programmes are free to air or not will eventually be resolved in trial. However, if it is true that these programmes are broadcast free to air or unencrypted, it would be quite unreasonable, in my view, to deny those who watch or view these programmes. Certainly, if the injunction is granted, it will mean the plaintiff will have a monopoly, or the programmes would be in the absolute control of the plaintiff, and that would be unfair and unreasonable to the defendant and its clients.

"I consider that the public interest is a paramount consideration in this application. We are not only talking about the interests of the plaintiff and the defendant here but the interest of so many members of the public as well. In my view, it would be most unfair and unreasonable if the public were to be denied access to these programmes by the grant of an injunction. I agree with (the attorney for the defendant) that it would be against the interest of Papua New Guinea and its citizens if an injunction is granted in favour of the plaintiff.

"*For these reasons, I would refuse the plaintiff's application and order costs against the plaintiff.*"

Counsel for the defendant, Mr. Phillip Smith, in reviewing the decision wrote:

"*On the 18th December 1998* Sevua J. dismissed the Plaintiff's Notice of Motion and refused thereby to grant injunctive orders restraining Channel 8 from showing the programmes the subject of this civil action.

"*His Honour further* made an order that the Plaintiff pay (Channel 8) costs incidental to the hearing of the Notice of Motion. Hitron's lawyer has suggested they will appeal the decision.

"*In order to appeal against this decision*, Hitron must obtain leave to appeal before it actually makes the appeal proper. In the writer's opinion, the chance of successfully appealing this decision is remote. The Judge has carefully crafted a decision which the Supreme Court is most unlikely to review."

TECHNOLOGY BYTES

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January 27, 1999 ◆ VOLUME 99-1-54

Satellite TV & Radio

PAS-8 problems. PanAmSat is now admitting to the problems reported in SatFACTS for January 15th. PAS-8 went to 166.5E, a minimal level of spacing (2.5 degrees) west of PAS-2 at 169E. PAS-8 was designed to serve three specific Ku markets (Australia but not New Zealand, Southeast Asia and Northeast Asia). This design involved three separate feed antennas, one for each of three beams. And all three beams were to be interconnectable to the Napa (near San Francisco) PanAmSat site. The concept was that a Ku uplink from California (Napa) could go directly to PAS-8 and thence on to any of the three Ku beams. The design of the Napa coverage was tricky - it required a very small "squirt beam" or "puddle" of coverage that landed only in the vicinity of San Francisco. And there is where the major PAS-8 problem exists. The Napa "squirt beam" lands not in the vicinity of San Francisco, but rather out in the Pacific off of the California coast (towards Hawaii). It is difficult. Some would say impossible - to uplink from California if the special "puddle" of coverage doesn't arrive at Napa. PAS-8 was to be the "gateway bird" allowing coverage of the Sydney 2000 Olympics to be sent back to the USA for distribution world-wide. The entire concept of PAS-8 as it relates to Australia and the two Asian beams was for direct coverage through Napa. (**1**) With the "squirt beam" someplace out at sea off the California coast, the business plan for PAS-8 is significantly altered. In an attempt to locate the missing squirt beam, and get it back in Napa, PanAmSat has spent most of December and virtually all of January "playing" with the alignment of PAS-8. As we go to press, the satellite has been shifted on its axis like a corkscrew in an attempt to first locate and then re-land the squirt beam into Napa.. Tests during the week of January 22 had PAS-8 twisted on its axis by around 10 degrees - you could see and measure this "twist" in Australia, for example, by observing the amount of polarisation "skew" or twist of the PAS-8 test transmissions on Ku band. Where the twist would nominally be 7 degrees, it has been 17. When the satellite is twisted out of its design axis alignment, several side effects occur. First, the beams that had been intended to cover Australia, Southeast Asia and Northeast Asia shift. This means the planned for coverage areas, and the amount of signal arriving in the coverage zones, is altered by the shift in the satellite's axis. Australian tests, by mid-January, were revealing as much as 1.5 dB more signal than had been expected at Ku band because of these readjustments. Conversely, signal levels on Ku band into the two Asian beams was believed to be down from the anticipated levels. Meanwhile, commercial activation of even the C-band services from PAS-8 have been delayed. A spokesman reported "*some* (digital) *commercial services are now on PAS-8 C-band*" (January 22) but reports to our sister publication SatFACTS strongly suggest that C-band coverage may ultimately prove to be below expected ground signal levels as well. New Zealand was originally designed "out" of C-band coverage from PAS-8, then on protest of several programmers who were planning to move to PAS-8 from PAS-2, there were "promises" that a last minute reconfiguration of the transmission antenna coverage would improve signal levels here. Test measurements indicate the levels are hovering in the 26 dBw region; that translates to 6 metre size dishes for any full-time commercial use, and rules out all but occasional reception for typical home style dishes. However, the reports are from a single transponder on PAS-8, 3860/1290 horizontal polarity, turned on as a 'homing beacon" to allow users to properly find the new satellite. PanAmSat refuses to supply information (**2**) regarding the power level of this test signal, whether it is on a transponder that should (by design) be at a usable level into New Zealand so it is too early to draw any conclusions from the C-band tests. What is know is that NHK (Japan), which currently reaches several thousand home style dishes on PAS-2 and has aggressively promoted C-band subscriptions to its pay-TV service presently on PAS-2, plans to move to PAS-8 with tests starting before

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1/ One option being investigated by PanAmSat - to try to get sufficient Ku band signal from PAS-8 into Hawaii to allow them to connect into PAS-8 from the USA - via Hawaii - after hopping from California to Hawaii on a domestic Galaxy satellite.

2/ PanAmSat has advised Discovery Channel that it believes dishes 3.8m in size will be "suitable for New Zealand" for the Discovery service move to PAS-8. How this information affects others to move (including CNNI, TNT/Cartoons, NHK and others) has not been announced.

February 1st and then a scheduled turn off of the existing PAS-2 service April 30th. Reports on the 3860 test slate service throughout Australia vary from "several dB weaker than CNNI on PAS-2" to "about the same as CNNI." Unfortunately for NHK users, this will not be good enough if the 3860 signal is comparable to the NHK service when it begins operation. Japanese subscribers to NHK in Australia largely have 1.8 and 2.1 metre antennas, and that will not be good enough for the PAS-8 signal. Even if NHK is significantly stronger than the 3860 test signal now available, there are other problems relating to small dishes in Australia. A 1.8 metre dish has a "3 dB beamwidth" of 3.1 degrees. This means a 1.8m dish pointed at 166.5E will "see" the PAS-2 satellite with only 2 dB less signal than the PAS-8 satellite. And this means unmanageable interference between signals on PAS-2 and signals on PAS-8 simply because the dish antenna is too small. Bottom line? Thousands of dish systems installed for PAS-2 will, to continue to receive service when PAS-8 is operating, be required to replace with larger dishes exhibiting more precise "3 dB beamwidth control." (For a more detailed report, see SatFACTS for February 15th.)

Optus B3 test signal (12.562 Vt, SR 29.468, FEC 3/4) launched January 23rd is believed to be fourth pay-TV transponder for use by Austar and FoxSat.

NHK is announcing it will begin tests on PAS-8 "no later than February 16" with the intention of vacating their present PAS-2 transponder April 30. No test frequency for PAS-8 has been announced, although preliminary tests on PAS-8 are scheduled by NHK January 26 - 29 between the hours of 0105 and 0605 JST. During these tests, the NHK digital service on PAS-2 will go off the air because they have to use the PAS-2 equipment for PAS-8 testing on a temporary basis. You can communicate with NHK International Development as follows: Tokunori Yamanaka at fax ++81-3-3460-5188.

Discovery on PAS-2 did a modest change in their New Zealand and Australia feeds January 24 - audio is now on "channel 2" where previously it was on channel 1.

BBC on PAS-2 has switched to full-time use of 3743/1407Vt and no longer appears within California bouquet (3901/1249Hz) and there are ongoing problems. The 3743 transponder is shared with CCTV (China) and levels from BBC are reduced 3dB or more from the previous service on 3901. Moreover, there are hourly, daily, weekly cyclic signal level variations as great as 2 dB which further reduces the useful signal level at least for Pacific area viewers. Hong Kong and mainland China viewers have not reported a problem with the new frequency indicating the 3743 beam is stronger going north than south. BBC engineering is aware of complaints, trying to work out "fix" with PanAmSat. Suitable BBC contact to report problems: Brenda Jarman at fax ++44-181-576-2653 or Email brenda.jarman@bbc.co.uk.

RFO bouquet on Intelsat 701 at 180E did major programme line-up change January 23. Previously, Saudi TV, Abu Dhabi TV occupied programme channels 3 and 4 in the seven TV channel (+ 8 radio channel) bouquet. Now, French originated fTV (Fashion TV) and MCM (music TV) occupy programme channels 3 and 4 (FTA). Also in the bouquet - a pair of Canal + pay-TV service channels and three French terrestrial service channels for use in the Pacific (Tom 1, 2 and 3). fTV and MCM have been planning expansion into the Pacific and Asia, both are currently available through AsiaSat 2. Still in planning, perhaps to appear within the "RFO bouquet" with MCM and fTV - a second MCM "classic and jazz" service channel scheduled for start-up sometime before mid-year. fTV service is North American version, is <u>not</u> parallel in content to AsiaSat 2 programming, may in fact be more "risqué" than Asian channel content.

New SCPC on PAS-2. 3967/1183Hz with SR 6.618 and FEC 2/3 appears to be occasional video service channel for PanAmSat; on January 24, this feed carried ESPN backhaul from Australia to USA at SR 12.498 and FEC 1/2.

TV Indosiar has switched from FTA PAL on Palapa C2 at 4060Vt to FTA MPEG-2 at 4073Vt (Sr 6.500, FEC 3/4).

RCTI, Indonesian terrestrial broadcaster, is testing MPEG-2 service on Palapa C2 at 3440/1710 Hz with SR 8.000 and FEC 3/4.

Kuwait Space Channel has begun transmissions on Intelsat 702 at 177E; 12.650Vt, MPEG-2 within Thai bouquet (SR 17.800, FEC 1/2).

Plus 21 - the Indian based "adult fantasy" service channel that began 8 months ago to promote itself in Asia, appears to be no better organised and no better funded than any of its predecessors. In an advisory dated January 15th, Ranjit Singh (Marketing Manager) advises, "*Now you can watch the promotional PLUS 21 Adult Channel in digital mode from 9PM India time every Saturday starting January 16th for a period of 16 weeks. Our satellite is Intelsat 704 at 66E, 4055/1095 RHC, Sr 27.500 and FEC 3/4. Once this promotional telecast period is over, Plus 21 Adult Channel will broadcast every night from 11PM to 3AM India time. We will be utilising the France Telecom Viaccess Conditional Access System for the permanent broadcast services.*" People who have sent Plus 21 money to acquire the Viaccess CA IRD have yet to receive any hardware for their prepayment of funds.

AsiaSat - the operating company - is merging with European based Sociiete Europeenne des Satellites (SES) in complicated stock + cash exchange. SES now owns 34.13% of AsiaSat, replacing Cable and Wireless as a stake holder.

Gorizont 29, mystery Russian craft, has been circling into the Pacific region and appears as CTD goes to press to have stopped moving in the vicinity of 130E. This location was previously occupied by a Russian satellite, is still "registered" for Russian use. Tests, if they begin here, should be found on 3675/1475 LHC.

JcSat 6 launch window is February 3-4 between 22.44 and 01:11 UTC. This Ku only satellite is heading for 154E, was previously scheduled early January.

Insat 2E is now scheduled March 19 to 83E. **Intelsat K-TV**, high power Ku band bird for Asia, to 95E has been rescheduled to April 15. **Orion 3** to 139E has been rescheduled from March 8 to "later in March or early in April" because of reported "difficulties with the satellite package." **ChinaSat 8** to 115.5E with C and Ku on board including coverage of Australia and Pacific - now delayed to "sometime in March" (was January). There is a trend here - to delay launches and increase on ground testing of all systems before launching defective birds - such as PAS-8.

C Net Taiwan, reported as operating with a 10 channel (digital) television bouquet on both Apstar 2R (76E) and Palapa C2 (113E) has ceased transmissions on Apstar. The service is planning fully Nagravision encryption with subscriptions available in the Pacific sometime around February 1st. One of their channels, Sun Movies, was FTA in mid-January but has subsequently reverted to an encrypted status. This programme channel carried English and Chinese movies, commercially sponsored and was briefly popular with the free to air enthusiasts in the Pacific.

Indovision outside of Indonesia. Tests conducted in Fiji indicate the S-band Cakrawarta signal level there is high enough to produce 80 percentile "signal quality" readings on a 16' dish. Similar tests in New Caledonia indicate usable signals with dishes as small as 2.1m. Indovision smart cards imported to Fiji have not been successful in receiving all of the programming, however, when utilising Pace DVS 211 IRD units. The exact status of Indovision operations remains largely a mystery, subject to weekly changes according to reports from Indonesia to sister publication SatFACTS.

NBC Asia has confirmed their continuing (FTA) MPEG-2 transponder usage as follows: Channel 1 - CNBC Region, 2 - CNBC Australia, 3 - National Geographic Regional, 4 - CNBC India, 5 - National Geographic Taiwan (Chinese subtitles), 6 - CNBC Taiwan (part of day subtitled in Chinese) and 7 - Syndicated programme distribution including live feeds from USA to Hong Kong and the Far East.

USIA (United States Information Agency), operator of WorldNet (AsiaSat 2 FTA analogue) is expanding the As2 service platform. In a convoluted announcement that tells us almost nothing, USIA plans to add 24 separate VOA (Voice of America) radio relay channels to the present As2 service, apparently utilising transponder space outside of the present 36 MHz transponder. The relay of VOA programming is intended to go to affiliated terrestrial radio stations throughout the Pacific and Asia, providing "clean, non-interrupted" feeds for terrestrial radio station re-use. The expansion is scheduled to commence sometime during February (1999).

Kristal Electronics (www.dalsat.com.au) has announced availability of the new Hyundai HSS700 series digital + analogue and digital only IRDs. They claim the IRD will locate digital services in a search mode without knowing the frequency, FEC, or symbol rate.

Next generation of digital IRDs will include 10 Gb or larger hard drive to allow users to record directly to drive digital TV programming. Philips is introducing STB (set top box) "add on" for digital TV reception systems at under US$500, at 10 Gb record range (which equates to roughly ten hours of record time) while larger hard drive boxes with up to 40 Gb of record time are expected before mid-1999. Digital IRDs for pay TV services such as Austar and Sky NZ are the next target area for the IRD makers, utilising hard drive record technology developed by California firm TiVo, Replay Networks and more recently WebTV. Initial hard drive + IRD models will be priced in region of US$800 but pricing is expected to drop to under US$500 within 12 months. Main TiVo hard drive record feature - user can record programme and "come in late" while programme is still recording and view from start. If there are commercial breaks or other interruptions, viewer can actually "catch up" to real time reception before end of programme showing.

SA D9223 owners. Scientific Atlanta has been transmitting the latest release (version 2.04) software using virtual channel 20 of the ESPN bouquet (PAS-2, 3860/1290Vt at SR 26.460 and FEC 7/8). This version apparently modifies a 9223 to allow it to tune non-PowerVu services (such as NBC). That bad news is that while the instructions are straight forward (tune your 9223 to this channel, go away for several hours and then return), equally clear should be this warning: Not all 9223s will accept this download, resulting in possible total destruction of existing software in the download for which there is only one solution - sending the IRD back to SA (Sydney) for an expensive reload repair job. *Caveat emptor* - just because it is a "free" download does not mean it is a "good deal." There is one plus - IRDs so modified will then receive the audio portion of the ESPN transmissions - although the programme channels are CA - but not the video.

STATUS Report - Satellite Pay TV in Australia

AURORA: This is the Optus (satellite) inspired project to replace the 1984 B-MAC encryption technology rural consumer home TV systems with MPEG-2 variant digital service. The project is almost precisely one year behind schedule and is now projected to be completed by June. Imparja's service is now within the Aurora bouquet, Victoria, NSW and Queensland remain to be implemented. The two primary national Aurora TV service channels, ABC and SBS, are partially deployed - SBS expects four time zone feeds of its service to be functional before the end of February. Also scheduled for February - a commercial service originating at Channel 10 Network for remote areas. Sky Sport, the horse and dog racing coverage service, has finally settled on Aurora after a brief period when it was investigating utilising PAS-8 (along with FoxSat). Sky Sport will be available only to commercial premises (betting shops, pubs) with a hoped for launch date in February. Receivers for Aurora continue to be supplied by South African firm UEC with persistent hints that other suppliers - such as Sun Moon Star and Panasonic - could also be nominated as secondary sources.

AUSTAR: This is the regional, non-metropolitan district pay TV service that prior to May 1998 existed in the shadow of Galaxy. With the failure of Galaxy, Austar has become a major player. It claims 289,000 subscribers as of December 31, a 47% growth in 12 months. Austar and Galaxy maintained the same satellite viewer authorisation centre and shared essentially the same programming. With Galaxy now gone, Austar has begun to offer programming channels from cable operator Optus Vision (3 movie channels on offer January 1), and has stuck a small toe into the programme creation business by launching a 24 hour live + text + graphics "weather channel" for Australia. Austar has utilised the same Pace brand DGT 400 IRDs as Galaxy initially used, recently has begun using Sun Moon Star (SMS) IRDs. Austar says they are investigating adding additional programme channels (presently 25) which could be sourced from Foxtel (the cable company), Optus Vision (the cable company) or elsewhere. Austar is controlled by UIH/UAP - who also own 65% of New Zealand pay TV + telephony operator Saturn.

FoxSat: Cable operator Foxtel, known unofficially as "FoxSat," has an official corporate launch date for satellite TV service of March 1. The firm acquired the customer base and home dish installations of ex-Pay-TV operator Galaxy in June (1998) and has been working out a suitable business plan since that time. FoxSat will not:

1) Utilise PanAmSat PAS-8, but admits it came close to that decision;
2) Share any programming with Optus (cable or satellite) beyond that already agreed for sharing.

FoxSat plans to separate its customer conditional access centre from that currently jointly used by Austar and Foxtel - a hold over from the previous Galaxy arrangements - but does not plan to change from Irdeto to some other form of conditional access "at this time." Austar, of course, utilises Irdeto as well. FoxSat is purchasing 27,500 UEC model 642 IRDs for rollout of their FoxSat services between now and April 1, plans to acquire an additional 50,000 IRDs from UEC and/or some additional suppliers for delivery between April 1 and June 30.

As an example of what is expected, FoxSat marketing projects it will install just under 400 new satellite installations in Melbourne the first week in March, and a total of approximately 2,200 during the full month of March there. This equates to 25 full time installation contractors working in the Melbourne region - 88 per contractor during the month. A contractor typically is paid between A$110 and A$121 for a new, complete DTH installation through FoxSat. With 27 working days (Sundays off), an installation contractor can gross around A$358 per day if he completes just over 3 new installations each working day.

FoxSat will initially be available in major urban centres (such as Melbourne, Canberra) and not in regions where Austar is currently offered. The precise channel line-up for FoxSat has not been announced, is likely to be around 25 channels - less than Foxtel cable and on a par with Austar.

OPTUS VISION SATELLITE: It is dead, at least through June and probably forever. Optus - the satellite operator - retained FoxSat as a client when it agreed to conditions laid down by Foxtel and effectively foreclosed its own operation as a pay-TV DTH/DBS operator in the agreement. The staff has been cut from dozens to two people, "sample" Optus Satellite smart cards distributed to a handful of people during November and December are being recalled (see SatFACTS Monthly, January 15).

Fox Sport in Australian hotels. A sales group within Foxtel has been selling sport clubs, bars and the like on a special 2 or 3 channel "sport package" using satellite delivery from within the larger Foxtel/Austar bouquet. Smart cards supplied by Fox to installers are supposed to only receive the two or three channels subscribed to by the club - but there are errors being made with the cards and many installers are reporting these "special" smart cards often also access the not-otherwise-available Optus Vision channels (including their two sport channels) as well. The world of customised smart cards is not yet perfect.

US DirecTV has requested assignment of new frequencies for use by the fixed satellite service, to serve as "feeder links" and an expanded BSS (broadcast satellite service). They are asking for 24.75 - 25.25 GHz for feeders and 17.3 - 17.8 GHz for direct to home / ground links.

Echostar, North American DBS service provider, has settled court suit with News Corp by agreeing to purchase assets of the MCI Worldcom-News Corp ill fated DBS venture. Echostar will pay US$1.25 billion to acquire 28 high power DBS channels located at optimum 110W location, pair of Loral built satellites intended for that location and satellite uplink complex built for the project in state of Arizona. This would in theory allow Echostar to transmit as many as 2,000 separate digital TV channels with their DISH service. News Corp will own 29.7% of Echostar in new stock package. Echostar also gets "approval" to be licensed for NDS conditional access technology, retransmission rights to Fox TV network signals as well as Fox News Channel. Deal is subject to lengthy approval process, could be year or more in coming.

Further consolidation. DirecTV is purchasing the assets of co-pioneer USSB for US$1.3 billion. USSB has shared the same transponders, satellite package as DirecTV from the initiation of satellite DBS in USA. But each conducted its own marketing programme, selling essentially complimentary if not competitive programming packages. USSB had HBO, Showtime movie sources and held 5 frequencies at 101W and 3 at 110W. Combined channel count, now available through DirecTV - 210 channels. DirecTV added 1.1 million subscribers during 1998, ending at 4.46 million.

Rupert Murdoch has acquired 80% of Italy's Stream through News Corp International for price of US$119 million. News is expected to on-sell just under 30% of what it bought back to Italian interests retaining 50% +, to satisfy Italian government concerns. Stream has an estimated 110,000 subscribers, runs weak second to Telepiu with nearly 450,000 subscribers. Italian soccer drives both services and Telepiu presently controls majority of rights to game in Italy. Murdoch has been attempting to enter Italian TV market since 1995.

Digital TV & Radio

Los Angeles local TV station KTLA broadcast 1999 Rose Bowl Parade in high definition TV, the first such broadcast by a local station.

Pioneering HDTV station WHD-TV in Washington (DC) has demonstrated new compression capabilities using hardware and software created by NDS Americas, a News Corp firm. Using a standard 6 MHz TV channel bandwidth, WHD and NDS showed 4 NTSC 480i signals simultaneously transmitted, then a single ATSC 1080i plus an NTSC 480i programming channel in the same bandwidth. NDS trademarks (overlaying time, channel name, programme name and programme time remaining) were also demonstrated.

IEEE-1394 so-called firewall linking between devices carrying unencrypted digital information is running into competitive arguments. Basic iLink system, endorsed and largely developed by Hitachi, Intel, Matsushita, Sony and Toshiba, could be available using custom ICs as early as September. However, competitors including Thomson, Philips and Zenith are quietly pushing for alternative (HAVi) "standard" although there is a lack of agreement on what that alternative might be. Heart of plan is to "*secure digital information stream, after decryption, inside of DVD players, TV sets and other devices* (including home PCs) *to protect copyright material from being copied or otherwise used without rights' owner approval.*"

Study by Forrester Research bottom lines anticipated growth of digital HDTV in North America. Basic conclusions: (1) HDTV receivers will still cost in excess of US$2,000 in 2009; (2) broadcasters to make the heavy cost of digital pay off will be forced to use spectrum space for multiple programme channel transmissions (largely or totally in SDTV - standard definition format). CEMA (Consumer Electronics Manufacturers Association) disputed study results, says 10 million HDTV sets will be sold per annum in both 2003 and 2004.

Numbers. Philips is forecasting sale of digital video equipment will reach US$22 billion by end of year 2000; says existing digital DVD and satellite digital equipment sales now accounts for 10% of all consumer electronic purchases.

Ooops. American TV industry is backtracking on its technical decisions establishing method by which HDTV and DTV services are being transmitted. At time of HDTV/DTV decision, Zenith developed 8-VSB system was best performing technology. Subsequently, European COFDM technology has improved dramatically and now American broadcasters are saying, "*If we cannot reach consumers with our new digital services, we don't have a broadcasting business.*" At heart of problem is highly susceptible 8-VSB system to ghosting or multi-path signal reception. 8-VSB does not function well, if at all, if the images being received have two or more images present;

STATUS of Pay-TV Programming Sources in Australia

Optus Vision (cable) has found sports coverage to not be a major inducement for subscribing to its cable services. They believe this to be a content problem and are nearing completion of a new sport package largely assembled by (Australian) Channel Seven. Branding is to be "C7 Sports". There will be two channels initially, carrying AFL, tennis, cricket, soccer and other imported sporting events. "C7" plans to launch shortly in front of the AFL season (March). With Optus Vision not going to satellite, and Optus Vision an also-ran cable service, there is speculation the sport service may be offered as a separate tier to Austar subscribers.

In other sport areas, Seven Network is paying A$160 million for the exclusive broadcast and pay-TV rights to the Sydney games. There has been no decision how the pay-TV services will be structured, which pay TV distributor will carry the non-broadcast events.

Optus Cable needs better programming to put it back into the "race" with Foxtel for subscribers. Foxtel is now approaching a two-for-one lead on Optus (when satellite subscribers of FoxSat are included). Optus uniquely bundles telephony service with cable - a practice widely followed in the UK and recently introduced in New Zealand by Saturn. Optus admits there has been a "*huge fault level that is absolutely unacceptable*" with the cable telephony; fault rates that approached 20% (of all calls attempted). That rate is now down to a reported 3.9%, "*acceptable*," according to Optus, "*for a new technology*." Optus (cable) shows no clear marketing plan, leading to observations the company lacks experienced cable + telephony management and is floundering in a sea of indecision. Their latest "plan" - to identify "patches" of ethnicity in major metropolitan areas, package ethnic TV programming with telephony to be marketed directly to these "ethnic pockets." There are technical problems here - Optus (cable) has never shown an interest in wiring or serving multiple dwelling units (MDU - apartments, blocks of flats) and this is the type of housing where ethnic groups most frequently are concentrated and live. So - to even implement this "simple" marketing plan, an entirely new "plateau" for Optus in their already over "worked" technical department.

Foxtel's satellite arm, FoxSat, programming content remains a much discussed, hotly debated topic. Foxtel says they will "*never, ever, offer programming which originates at Optus* (Vision)." Optus Vision is financially burdened by its programming commitments (a reported A$2.2 million per month for Disney - for example) and in the Foxtel view, the demise of Optus Vision as a cable operator is not only desirable but will occur sooner if Optus is forced to continue subsidising agreements with the likes of Disney. By not "sharing" Optus programming, Foxtel advances the date when Optus finally gives up on expensive programming - such as Disney. FoxSat wants a programming line-up that will "tease" or "tempt" metropolitan subscribers away from Optus Vision cable as an option. At the same time, they are laying the foundation to swallow, merge with or buyout Austar over the next 2 to 5 years. Foxtel has one corporate goal - to be the "survivor" in Australian pay television - both cable and satellite. It has several unique channels which strengthen this aim. The best "guesstimates" of how FoxSat will launch includes the following:

Phase 1: Showtime, Encore, TNT, Cartoon Network, World Movies, Arena, Comedy Channel, TV1, Channel [V], BBC World, Discovery, Lifestyle, Nickelodeon, Fox Sports 1 and 2 (2 channels), CNBC and CMT - at A$42.95 per month.

Phase 2: The previous plus Fox 8, National Geographic, Sky News, CNN, Sky Racing and TVSN - at a rate of A$54.95 per month. For an additional A$9.95 per month - "Entertainment Package" which adds Fox Kids, History, FX, FX Movies, and Hallmark

Austar, meanwhile, is involved in negotiations to add programming services from both Optus Vision (cable) and FoxSat. Austar reps are telling subscribers their present 25 channel universe could grow to "as many as 40" by the middle of this year. They suggest that within the new channels they might offer are the Optus C7 sport channels, Fox 8, UK TV, Sky News Australia, Ovation and MTV.

Presently, three transponders with a total compressed programming capacity of 12 (programme) services per transponder are available on Optus B3 for pay-TV. Any number of programming channels beyond 36 (3 x 12) will require an additional transponder, or a higher level of compression (fitting more services into the existing available space). It is in this latter realm that Optus (the satellite company) is in control; when and if more transponders are made available for pay-TV, that decision will require significant satellite loading rearrangements by Optus. Fox may control the fuel but Optus still owns "the bus." (see p. 13, "Optus B3...")

Sony PlayStation Piracy - How it works

World-popular electronic game package, PlayStation, by Sony is battling an organised piracy effort with an apparent headquarters in Southeast Asia. PlayStation technology utilises CD-like discs carrying the essential software to operate the chosen "game." Sony discs have a black background, a colour Sony claims was chosen to deter piracy of their discs. Piracy discs are "clear" (as in transparent) or white. A PlayStation factory disc inserted into a CD-R (recorder) can be copied to a blank (clear) disc. Making a "master copy" from the original can take hours, but once made, copies of the copy can be turned out in about 17 minutes per copy using 4X CD-R hard and software. Piracy copies are widely sold for approximately 20% of the legitimate price.

A piracy copy, however, will not play on most PlayStation players. Sony sourced discs have a "regional coding" that identifies the part of the world where the disc can be used. Sony staggers the roll out dates for new games, and the "regional" coding employed is similar in concept to the DVD (digital video disc) encoding - and for the same reason (to assist retailers in controlling the local marketplace by preventing import of early release foreign source discs). The "answer" to regional coding with PlayStation is a US$40 "modchip" which the Pirates also provide. Modchip solders into PlayStation, takes over the authorisation process when a new game disc is inserted, and automatically gives the player the "handshake" it requires when the disc is interrogated for its regional coding number. Modchips for PlayStation parallel similar modifications available for regionally marked DVD players.

The phenomenal success of PlayStation is part of the problem. Sony releases new games first in Japan and North America where enterprising pirates quickly create a master pirate copy and then ship their master offshore where cheap copies can be manufactured. Southeast Asia and other Pacific Rim countries are the primary areas where this occurs. Most of the pirated copies are sold in Hong Kong style shops and imported as mislabelled goods back into marketplaces such as the USA. Europe, the UK in particular, is a favourite target for pirates - the market knows about new game discs, is anxious for their release but is constrained by Sony staggered release policies. Hundreds of Internet sites offer mod chips, full instructions for reworking players to ignore regional coding, and a growing inventory of pirated games. The Interactive Digital Software Association attempts to police Web site sales, reports it has been 65% successful in getting Internet Service Providers (ISPs) to shut down sites which offer piracy products. Sony has put up US$165,000 and that amount has been matched by European trade association to create a task force to investigate and prosecute European firms involved in piracy of the software and modifications of the PlayStation (PSX) hardware. Blank CD-R discs are projected to go up 42% this year (over 1998) reaching 320 million from Japanese sources only. Sony has shipped 50 million PlayStations since product start 4 years ago, 20 million during 1998 alone.

COFDM, by comparison, is "robust" under multi-path situations. The US had pointed at Australian decision to utilise COFDM as a "poor choice" as recently as September, when in fact it now appears the Australian decision to follow the European plan was the right one. New Zealand's decision to utilise COFDM has seldom been in doubt, primarily because of the "rough terrain" of the country which only makes multi-path reception more of a problem. American engineers are now admitting they may have rushed to judgement in favour of 8-VSB, and are looking for ways to solve the multipath problems which real world broadcasting now indicates are common.

Consumer Electronics

Thomson Electronics is being sued by New York City area customer who claims he purchased a 27" Thomson TV set which was "used" and "assembled from previously used parts." Thomson admits it has a standard practice of selling "refurbished" TV sets, but claims consumers are told that such sets are not the same as "new." Consumer purchased 27" RCA receiver for US$238 in factory sealed carton last July. Thomson/RCA says they have a very liberal return policy, often giving consumers total refund for receivers up to six months out of the box. The practice of rebuilding returned sets and selling them as new is not believed to be common in the TV world although in home PCs the practice has been pervasive. Packard Bell NEC, for example, agreed to refund US$1.5 million to consumers in 22 states during 1996 after state attorneys general discovered PCs were being sold as "new" were often not as represented.

Dick Tracy wristwatch from Seiko goes several steps beyond the comic strip character's device. New Raputer MP140 (US$350) is described as wrist-worn Personal Digital Assistant (PDA) containing 4 Mbyte of memory.

What Foxtel/Austar Installers are Paid

Installers of home satellite dish systems for service providers Austar and Foxtel/FoxSat in Australia currently are being paid on a per job basis at a rate established by the master contractor. Some representative fees paid to the installer are as follows:

a) Satellite domestic install on tin roof mount - A$118
b) Satellite domestic install on a facia mount - $121
c) Satellite domestic install on a wall mount - $110
d) Add outlet at time of same visit - A$38.00
e) Standard service call - A$35
f) Service call and replace LNBF - A$35
g) Collect decoder, dish from ex-subscriber - A$23
h) Decoder and smart card pickup only - A$17.50

The installer pays for his own "consumables" (clips, staples, screws, straps, tape, weather sealant) and purchases the mount directly from the master contractor at prices that range from A$6 to A$10 per mount.

Included - "Raputer Movie Maker" software to create video files. Unit also has infrared port allowing it to function as "smart control" for TV and other video sources. Seiko plans 20,000 units first year.

Daewoo's consumer electronics investments will go to Samsung and Samsung will trade to Daewoo its automotive investments. The move is part of a plan to "clean up" the tangled investment portfolios of Korea's five largest conglomerates. Korean government has mandated paring down conglomerates to core industries. The five largest Korean firms have 264 subsidiary businesses and approximately half of these will be spun off in the reorganisation move. Restructuring of South Korean conglomerates was primary feature of US$58 billion bailout provided to nation by International Monetary Fund (IMF). Debt to equity ratios of five largest firms was 476% (average) in 1997 at time of agreement - must be lowered to 200% by 4th quarter this year to satisfy IMF funding. Daewoo's Telecom division will be sold separately. Daewoo workers were scheduled to begin strike against company January 20th to protest the Samsung-Daewoo decision. Korean labour unions still exert considerable power over corporate operations.

DVD regional modification updates. Pioneer's popular DV-505 and L-909 models which can be "region neutered" with soldering iron and two pin "bridge" are being augmented with new 3rd generation 717 player - which resists region neutering. However, new Philips 930 can be made region neutral with a series of commands entered on the unit's remote control. And, the new JVC XV-D2000 can be similarly modified using front panel set-up buttons. Report on both techniques is described in British publication Home Cinema Choice for December/January. Philips agrees that their 930 model will accept such instructions but "*after 25th set of instructions it will refuse to accept the region change again.*" Home Cinema Choice reported, "*After 35 changes, we grew bored with the exercise because it worked flawlessly every time.*"

DVD movie discs sold more than 800,000 copies in week prior to Christmas in USA; total sales for 1998 was in excess of 9 million with more than 2,000 titles available at year end.

DVD players in many new forms were highlighted at annual Las Vegas CES gathering. Players with 5 disc changers, portable hand held units that operate from battery, DVD transport systems built into CD player and TV receiver housings were everywhere evident.

DIVX version of DVD results. Circuit City claims it has sold more than 100,000 of its proprietary brand of DVD player through the Christmas buying season, and during December for every three DVD players sold, it sold one DIVX version. They also report that consumers with DIVX in their home on average acquired 11 DIVX movies in the first six weeks with the new machine, and at the same time purchased 4 DVD movies. Circuit City believes DIVX will survive and grow because people will prefer the rental feature of DIVX for movies they wish to "view one or two times" while retaining the ability to also collect "classic" or very important movies as well (using the open DVD format).

Sony 315 and 715 PAL format DVD players will not play second disc in recently released Best of George Michael twin CD set. Second disc combines graphics and text along with music and this apparently confuses the DVD players which simply refuse to pick up the audio tracks.

Hard drive recorders for TV recording will begin to appear in consumer stores as early as March. There are three serious competitors in field, all from USA. Replay Network will be first, offering US$699 6 hour recording capacity system with step up models at $999 (14 hours) and $1,499 (28 hour).

Japanese telco NTT has developed new software that allows a video or computer programme source to be inspected at 600 times operating speed for signs of piracy. "Watermarks" left by legitimate programmers or disc makers are missing on piracy copies. Data downloaded from Internet, if of piracy origin, can be spotted using this technique as well.

The "Last" Optus Plan - before they killed DTH/DBS "for now"

Although Optus Vision will forego entering the satellite pay TV arena "at this time," the final "business plan" on the table in December when the kill decision was made went like this. *"Optus will supply satellite TV smart cards through a network of authorised dealers and distributors to retail customers. The cards have been designed to operate with the Optus approved UEC 642 IRD, although there are likely to be two additional IRD suppliers as well. Optus will not supply nor install the home dish systems or equipment - consumers will purchase their own equipment from local dealers and arrange for the installation through that dealer."* The business plan was being trialled in Western Australia when the close down decision was reached. The initial programme package to be offered was to be a hybrid of Aurora and Optus Vision channels.

WebTV, driven by the marketing power of (new) owner Microsoft, has hit the 600,000 subscriber mark; short of the 1,000,000 originally forecast but "well within our internal forecasts" according to Microsoft. WebTV boxes currently sell for US$199 (WebTV Plus) and $99 (WebTV Classic). WebTV has also signed agreement with DBS provider Echostar to provide higher speed download service of WebTV materials directly to DISH subscribers.

Camcorders from Sony and other brand name suppliers are falling in price and industry expects even lower entry level units by year end. Samsung 8mm is being promoted at US$249, JVC C-VHS with 22x zoom at US$299. Camcorders have stayed stable in pricing for several years but new digital and established Hi8mm units are now invading US$599 - $999 region which has effect of driving entry level, less sophisticated units even lower. Sub US$500 sales accounted for 38% of all (US) camcorders sold during first 9 months of 1998, up from 30% of market in 1997. Brand share in North America - 36% Sony, 20% JVC with Panasonic at 15%.

Sony D-8 is first digital camcorder to utilise 8mm tape format. Unit has US list price of $899 (rising to $1,399 in most deluxe version). 8mm tape runs at twice speed of normal analogue camcorders, cutting in half total record time available on blank. Biggest advantage - very high signal to noise ratio and 500 line resolution (standard 8mm analogue is typically 280 lines, Hi8 analogue is 440 lines).

PC prices are predicted to stabilise in US$399-$499 region after freefall price drops of typically 20% during 1998. Currently, US$699 is typical retail price but this is further eroded by $100 manufacturer rebate and additional $100 rebate by ISP provider that ties itself to packages.. However, lower prices are within foreseeable future; sub US$399 by 2000. Driving this will be new IC developments targeting specific to PC functions in single chip device. On the leading edge of that technology, Korean's KDS is offering US$399 PCs with 266 MHz processor, 16 Mb memory, 1.6 Gb hard drive under eMachines label.

VCR prices fell on average 20% during 1998 and sub US$150 models accounted for 22% of North American market. Bottom end 2 head machines are currently selling at US$79, predictions are 4 head machines will drop under US$100 by end of year while 2 head models will bottom at near US$59. Wal-Mart retail chain has been advertising price-leader 4-head model at US$89, below its cost by around US$15. Arguments within industry are asking whether there is a need for both mono and hi-fi (stereo) 4-head models as the prices erode. Four-head models currently have 75% of market share, of which stereo models account for 60%.

CD repair system, packaged as stand alone business niche to go into retail centres, at US$3,000 caught attention of showgoers at January CES. System is turnkey CD resurfacing and polishing technique that repairs all types of optical discs in under 3 minutes time. Cost of refurbishing disc, with turnkey package, is under US$0.50 per disc. Retail pricing to consumers will be established by each retail location. Source is The Compact Disc Repairman, Glendale, Arizona.

First HDTV DVD (movie) discs will apparently originate from adult film industry. Dual layer, 9 Gbyte on one side and 5 Gbyte on flip side is being described by firm Vivid Interactive. System is called DVD-10, will have 1080 lines of definition, but unknown is whether existing DVD players can even handle the format.

Cable/Fibre/MMDS/Pay TV

UIH Asia/Pacific (UAP) has posted a quarterly report stating, "In December, (New Zealand cable + telephony operator) SATURN announced the completion of NZ$125 million bank facility of which NZ$75 million has been made available to the company. The balance of the facility will be syndicated in the second quarter of 1999. Saturn, 65% owned by UAP, has achieved 20% telephone penetration of homes serviceable since its launch in May (1998). As of December 31, Saturn had over 7.500 telephone lines in service, 280 Internet subscribers and 6,000 cable TV subscribers." Saturn operates in Wellington region, is largest cable operator in New Zealand.

Sky NZ claims 32,000 "active" satellite customers as of mid-January and all 18 of their programming channels are now functional. Minor snafu in programming of software with Zenith brand decoders was reported around

first of year, apparently resolved by downloading over the air new software designed specifically to correct Zenith problem. Previous problem involved first Zenith units received by Sky - signals from VHF/UHF (terrestrial) antenna system when passing through the IRDs were attenuated by 10 dB resulting in degraded off-air reception. Solution was to use SCART outputs for Sky service and feed terrestrial signals back to TV set through two-way splitter reversed as a combiner. Zenith units affected by software problem reportedly go to black screen with the video and audio freezing up at "random intervals." Zenith units that have been software enhanced can be identified by going to diagnostic menu (screen) to read nomenclature at top of display. "Sky Network TV 110" is the it-has-been-enhanced designator whereas non-enhanced units will show "Sky Network TV 11a" Backlog of those with satellite dishes installed but not yet functional not announced.

Australian business news channel, ala CNBC, is in planning stages at publisher - media company Fairfax.

How many subscribers? When Foxtel/FoxSat took over ownership of ex-Galaxy IRDs and customer installations, they reported "more than 50,000 locations affected. Foxtel in release dated December 24th refers to "taking over approximately 40,000 subscribers" from Galaxy. Observers in Australia suggest the real number is closer to 30,000 ex-Galaxy subscribers who have taken up the offer from Foxtel to continue receiving satellite services.

Ex-Galaxy MMDS frequencies in Australia's major metropolitan regions may be activated by a new group that is planning ethnic programming services. The MMDS assets including hardware for the transmission and reception of microwave frequencies utilising the terrestrial MMDS technology have been purchased from bankruptcy manager Ferrier Hodgson by a firm calling itself TV/Radio Broadcasting (tel ++61-2-9776-2000).

Oprah Winfrey is major backer of new "Oxygen" channel planned to debut in USA for cable use January 1, 2000. The new service will utilise materials produced by Winfrey's Harpo Productions, and channel is to be programmed "for women, by women" in direct competition to popular Lifetime Channel in USA.

Cable TV provided (Internet) modems are expected to achieve 65% of residential high speed Internet market by 2003 according to recent US study. Report suggests, "*Digital subscriber line offerings from telcos must come down in price or telephone firms will have to accept niche provider role in the residential market.*"

1998 cable home viewing figures are in from USA. Big 4 TV networks (ABC, CBS, Fox, NBC) saw overall audiences drop with prime time viewing share down to 54% while cable TV exclusive programming rose to 39.7%.

US Department of Justice has given preliminary approval to proposed merger between cable giant TCI and telephone's AT&T. There will be only one major requirement - that TCI divest itself of 23% share in Sprint PCS ownership. AT&T says it will invest US$11-$12 billion in upgrading of TCI cable systems during balance of this year.

Terrestrial Broadcasting

A nation-wide Maori TV network is back on track with a hoped-for air date of late-1999. A trust managed by an electoral college will put together a business plan and when the plan is complete, UHF terrestrial frequencies reserved for Maori use in New Zealand will be transferred to the trust. Funding for the service is "guaranteed" through the 2002/2003 business year. Channel managers believe Maori language programming should be available not only through the new service, but continue to be "exposed" to Pakeha people through existing nation-wide television channels as well.

American Superbowl 30 second commercial spots are US$1.6 million for January 31/February 1 telecast; up $300,000 from 1998. Yes, they have all been sold.

American numbers. Daily viewing of television in homes has risen to 7 hour 13 minutes per home. Sunday night is the most viewed night, Saturday the least with a nearly 15% differential between the two. 40% of American homes have 3 or more television receivers.

Chinese television viewers in major centres (Beijing, Shanghai and Guangzhou) now have ACNielsen Group people meters monitoring television viewing habits. They project ten markets by the end of this tear